<u>In the sp cification:</u>

Please amend the paragraph beginning on page 5, line 10 as follows:

Another factor which needs to be addressed is the gain of the optical amplifier. When an active waveguide core is used, this gain is dependent on the confinement factor of the waveguiding material. For example, the gain may be proportional to the power that is contained in the cladding. This proportionality, however, may be non-linear. However, the gain of the waveguide structures may also be dependent on factors that determine the amount of power in the cladding such as geometry and refractive index of the material. The active resonator which includes gain therein. This may have different applications which are described herein. These applications may also vary depending on the amount of gain which is provided by the doping. There is a certain threshold gain which can be determined by experimentation. Below that gain, the amount of amplification that occurs may not be useful for many purposes. Above the threshold, however, the active material may spontaneously <u>emit light</u>~~ emit~~. This can bootstrap the cavity to an appropriate photon density which produces stimulated emission. The stimulated emission may be analogous to lazing, hence forming a laser cavity from an optical resonator. However, below the threshold, effects may also be useful for

filtering optical signals, e.g., forming an add/drop system only to the frequency of interest to a specific waveguide. Unlike other systems, this system can use semiconductor materials. Since an optically inactive material such as silicon may be used for the core waveguide, this provides flexibility in the kinds of material that can be used in both over the threshold and under the threshold applications.

Please amend the paragraph beginning on page 6, line 15 as follows:

Yet another application is in rotation sensing as shown in Figure 3. The ~~Sagnag~~ Sagnac effect as used in a ring laser gyroscope relies on the interference of counter propagating beams. A resonator 310, such as a disk resonator, is driven as described above operate over the lazing threshold. Light from source 300 is coupled via waveguide 305 to form counter-propagating light in many different directions within the resonator 310. If the disk is rotated, the counter propagating light will interfere based on the rotation according to the ~~Sagnag~~ Sagnac affect. The rate of rotation can then be sensed as a function of the intensity coupled out of the resonator to the adjacent waveguide 315, and a sensing element 320.